

Attorney Docket No. IMMR-095/02US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of Erik J. SHAHOIAN et al.

Serial No.: 10/816,954

Examiner: Unassigned

Filed: April 5, 2004

Art Unit: 2673

Confirmation No.: 2293

For: **LOW-COST HAPTIC MOUSE IMPLEMENTATIONS**

U.S. Patent and Trademark Office
220 20th Street South
Customer Window
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.


- ☒ In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.
- ☐ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
 - ☐ the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or
 - ☐ a statement as specified in 37 C.F.R. §1.97(e).
- ☐ In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. §1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.
- ☐ Check No. ___ in the amount of \$___ for the total fee is attached.
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- ☐ Please charge \$___ to Deposit Account No. 50-1283 for the total fee. This paper is being submitted in duplicate.

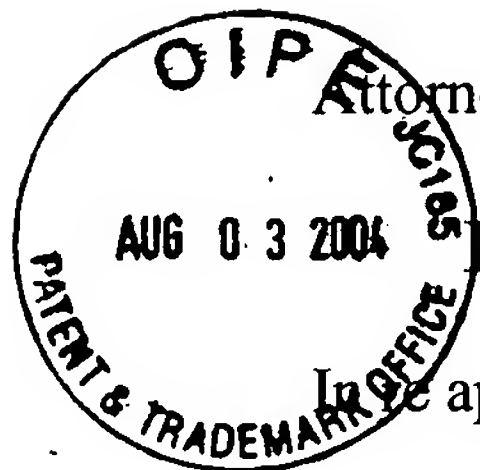
The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

Dated: August 3, 2004

Cooley Godward LLP
ATTN: Patent Group
One Freedom Square
Reston Town Center
11951 Freedom Drive
Reston, VA 20190-5656
Tel: (703) 456-8000
Fax: (703) 456-8100

Respectfully submitted,
COOLEY GODWARD LLP

By: 
Erik B. Milch
Reg. No. 42,887



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**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §1.97(b)**

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56, Applicant(s) hereby submits the following information in conformance with 37 C.F.R. §§1.97 and 1.98.

- ☒ Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the attached Form PTO/SB/08 (1 of 2) is provided on the enclosed CD.
- ☒ No copies of the publications listed on the attached Form PTO/SB/08A (2 of 2) are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. 09/759,780 (now U.S. Patent No. 6,717,573), 09/563,783 (now U.S. Patent No. 6,353,427), 09/253,132 (now U.S. Patent 6,243,078), 09/456,887 (now U.S. Patent No. 6,211,861) and/or 09/103,281 (now U.S. Patent No. 6,088,019) to which the above-identified application claims priority under 35 U.S.C. §120.
- ☐ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98 because this application was filed after June 30, 2003.
- ☐ Publication(s) ___ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to ___ application serial no. and mailed on ___.
- ☐ Enclosed is a copy of a non-English publication(s) ___. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- ☐ Enclosed is a copy of a non-English publication(s) _____. English language publication ____ (copy enclosed) claims priority from this non-English publication.
- ☐ Enclosed is an explanation of non-English publication(s) ____ for which an English translation is not available.
- ☐ Enclosed is an English translation of non-English publication(s) _____ cited in the attached Form PTO/SB/08A.
- ☐ Enclosed is a copy of pending U.S. Patent Application Serial No. _____

This Information Disclosure Statement is filed within any one of the following time periods:

- ☐ within three months from the filing date of this national application other than a CPA under 37 C.F.R. § 1.53(d);
- ☐ within three months from the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in this international application;
- ☒ before the mailing date of a first office action on the merits; or
- ☐ before the mailing of a first office action after the filing of a request for continued examination under 37 C.F.R. § 1.114.


It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

Dated: August 3, 2004

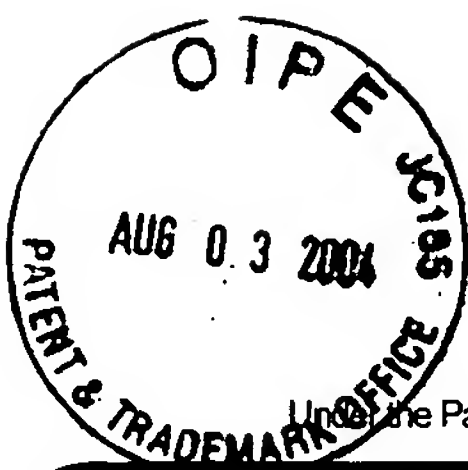
Cooley Godward LLP
ATTN: Patent Group
One Freedom Square
Reston Town Center
11951 Freedom Drive
Reston, VA 20190-5656
Tel: (703) 456-8000
Fax: (703) 456-8100

Respectfully submitted,
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(1 of 2)

PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 7

Complete if Known

Application Number	10/816,954
Filing Date	April 5, 2004
First Named Inventor	Erik J. Shahoian
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR095/02US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		20030201975	10/30/03	Bailey et al.	
		20020030663	3/14/02	Tierling et al.	
		20020024501	03/04/1999	Shalit	
		6,717,573	4/6/04	Shahoian et al.	
		6,707,443	3/16/04	Bruneau et al.	
		6,585,595	7/1/03	Soma et al.	
		6,424,333	7/23/02	Tremblay et al.	
		6,422,941	7/23/2002	Thomer et al.	
		6,317,032	11/13/01	Oishi	
		6,275,213	8/14/01	Tremblay et al.	
		6,211,861	4/3/01	Rosenberg et al.	
		6,198,206	3/6/01	Saarmaa et al.	
		6,184,868	2/6/01	Shahoian et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		6,104,158	8/5/00	Jacobus et al.	
		6,088,019	7/11/00	Rosenberg	
		6,088,017	7/11/00	Tremblay et al.	
		6,078,126	6/20/00	Rollins et al.	
		6,044,646	4/4/00	Silverbrook	
		6,004,134	12/21/99	Marcus et al.	
		6,001,014	12/14/99	Ogata et al.	
		5,986,643	11/16/99	Harvill et al.	
		5,984,880	11/16/99	Lander et al.	
		5,973,670	10/26/99	Barber et al.	
		5,945,772	8/31/99	Macnak et al.	
		5,914,705	6/22/99	Johnson et al.	
		5,897,437	4/27/99	Nishiumi et al.	
		5,894,263	4/13/99	Shimakawa et al.	
		5,889,672	3/30/99	Schuler et al.	
		5,857,986	1/12/99	Moriyasu	
		5,805,140	9/8/98	Rosenberg et al.	
		5,790,108	8/4/98	Salcudean et al.	
		5,784,052	7/21/98	Keyson	
Examiner Signature			Date Considered		

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¹ Applicant's unique citation designation number (optional). ² Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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2

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		Number Kind Code ² (if known)			
		5,781,172	7/14/98	Engel et al.	
		5,754,023	5/19/98	Roston et al.	
		5,742,278	4/21/98	Chen et al.	
		5,739,811	4/14/98	Rosenberg et al.	
		5,736,978	4/7/98	Hasser et al.	
		5,734,373	3/31/98	Rosenberg et al.	
		5,714,978	2/3/98	Yamanaka et al.	
		5,709,219	1/20/98	Chen et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,684,722	11/4/97	Thomer et al.	
		5,669,818	9/23/97	Thomer et al.	
		5,661,446	8/26/97	Anderson et al.	
		5,643,087	7/1/97	Marcus et al.	
		5,631,861	5/20/97	Kramer	
		5,619,180	4/8/97	Massimino et al.	
		5,589,828	12/31/96	Armstrong	
		5,587,937	12/24/96	Massie et al.	
		5,583,478	12/10/96	Renzi	
		5,580,251	12/3/96	Gilkes et al.	
		5,575,761	11/19/1996	Hajianpour	
		5,565,840	10/15/96	Thomer et al.	
		5,440,183	8/8/95	Denne	
		5,437,607	8/1/1995	Taylor	
		5,436,622	7/25/1995	Gutman et al.	
		5,405,152	4/11/95	Katanics et al.	
		5,399,091	3/21/95	Mitsumoto	
		5,388,992	2/14/95	Franklin et al.	
		5,354,162	10/11/94	Burdea et al.	
		5,296,871	3/22/94	Paley	
		5,283,970	2/8/1994	Aigner	
		5,203,563	4/20/93	Loper, III	
		5,186,695	2/16/1993	Mangseth et al.	
		5,186,629	2/16/93	Rohen	
		5,184,319	2/2/93	Kramer	

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		Number	Kind Code ² (if known)			
		5,175,459		12/29/1992	Danial et al.	
		5,165,897		11/24/1992	Johnson	
		5,146,566		9/8/92	Hollis, Jr. et al.	
		5,107,262		4/21/92	Cadoz et al.	
		5,103,404		4/7/92	McIntosh	
		5,022,384		6/11/1991	Freels	
		4,885,565		12/5/89	Embach	
		4,868,549		9/19/89	Affinito et al.	
		4,795,296		1/3/89	Jau	
		4,731,603		3/15/88	McRae et al.	
		4,706,294		11/10/87	Ouchida	
		4,484,191		11/20/1984	Vavra	
		4,464,117		8/7/1984	Foerst	
		4,414,984		11/15/83	Zarudiansky	
		4,333,070		6/1/1982	Barnes	
		4,262,549		4/21/1981	Schwellenbach	
		4,127,752		11/28/1978	Lowthorp	
		2,972,140		2/14/1961	Hirsch	
		RE37,374		9/18/01	Roston et al.	

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	
		WO	92/00559		9 Jan 92		
		EP	0607580		27.07.94		
		EP	0265011		27.04.88		
		EP	0626634		11.5.94		
		WO	01/03105		11.1.01		
		WO	01/24158		5.4.01		
		WO	97/31333		28.8.97		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/816,954
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		WO	01/13354		22 Feb 01		
		WO	98/32112		7.23.98		
		WO	99/40504		12.8.99		
		WO	02/27705		4.4.02		

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Sheet	5	of	7

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.	
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.	
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.	
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.	
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.	
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.	
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.	
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.	
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.	
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.	
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.	
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.	
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.	
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.	
		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).	

Examiner Signature		Date Considered	
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First Named Inventor

Erik J. Shahoian

Art Unit

2673

Examiner Name

Unassigned

Attorney Docket Number

IMMR095/02US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).	
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994	
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992	
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.	
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.	
		Schmult, Brian et al., "Application Areas for a Force-Feedback Joystick," ASME 1993, DSC-Vol. 49, pp. 47-54.	
		Hasser, Christopher John, "Tactile Feedback for a Force-Reflecting Haptic Display," The School of Engineering, University of Dayton, December 1995, pp. iii-xii & 1-96.	
		Akamatsu, M. et al., "Multimodal Mouse: A Mouse-Type Device with Tactile and Force Display," <i>Presence</i> , Vol. 3, No. 1, 1994, pp. 73-80.	
		Kelley, A. J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng., Univ. of Brit. Columbia, 1993, pp. 1-27.	
		Hasser, C. et al., "Tactile Feedback with Adaptive Controller for a Force-Reflecting Haptic Display," Parts 1&2, IEEE 0-7803-3131-1, 1996, pp. 526-533.	
		Ramstein, C., "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," ASSETS '96, 2nd Annual ACM Conf. on Assistive Technologies, 1996, pp. 37-44.	
		Dennerlein, et al., "Vibrotactile Feedback for Industrial Telemanipulators," ASME IMECE, 6th Annual Symp. On Haptic Interfaces for Virtual Environment and Teleoperator Systems, Nov. 1997, pp. 1-7.	
		Minsky, Margaret et al., "Feeling and Seeing: Issues in Force Display," ACM 089791-351-5, 1990, pp. 235-242.	
		Ouh-young, M. et al., "Creating an Illusion of Feel: Control Issues in Force Display," Computer Science Dept., University of North Carolina, 1989, pp. 1-14.	
		Hasser, C., "Force-Reflecting Anthropomorphic Hand Masters," AL/CF-TR-1995-0110, 1995, pp. 5-31.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Application Number	10/816,954
				Filing Date	April 5, 2004
				First Named Inventor	Erik J. Shahoian
				Art Unit	2673
				Examiner Name	Unassigned
Sheet	7	of	7	Attorney Docket Number	IMMR095/02US

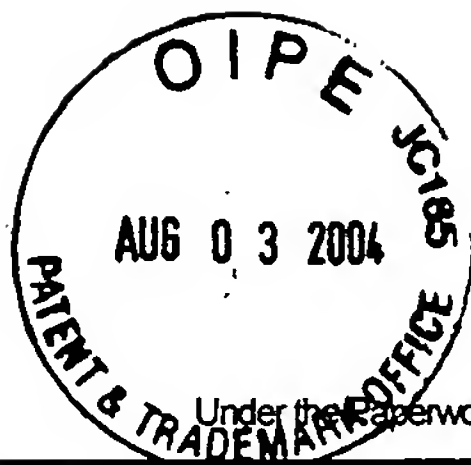
OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		Kim, Won, "Telemanipulator Technology and Space Telerobotics," SPIE Proceedings, 1993, Vol. 2057, pp. 40-50.	

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(2 of 2)

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First Named Inventor	Erik J. Shahoian
Art Unit	2673
Examiner Name	Unassigned
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U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
		6,128,006	10-2000	Rosenberg	
		6,100,874	08-2000	Schena et al.	
		6,088,019	06-2000	Rosenberg	
		6,088,017	06-2000	Tremblay et al.	
		6,078,308	06-2000	Rosenberg et al.	
		6,061,004	05-2000	Rosenberg	
		6,028,593	02-2000	Rosenberg et al.	
		6,020,876	02-2000	Rosenberg et al.	
		6,005,551	12-1999	Osborne et al.	
		6,004,134	12-1999	Marcus et al.	
		6,001,014	12-1999	Ogata	
		5,990,869	11-1999	Kubica et al.	
		5,986,643	11-1999	Harvill et al.	
		5,973,689	10-1999	Gallery	
		5,959,613	09-1999	Rosenberg et al.	
		5,956,484	09-1999	Rosenberg et al.	
		5,956,016	09-1999	Kruenzner et al.	
		5,944,151	08-1999	Jakobs et al.	
		5,914,705	06-1999	Johnson et al.	
		5,912,661	06-1999	Siddiqui	
		5,897,437	04-1999	Nishiumi et al.	
		5,889,672	03-1999	Schuler et al.	
		5,889,670	03-1999	Schuler et al.	
		5,880,714	03-1999	Rosenberg et al.	
		5,877,748	03-1999	Redlich	
		5,857,986	01-1999	Moriyasu	
		5,844,392	12-1998	Peurach et al.	
		5,831,408	11-1998	Jacobus et al.	
		5,825,308	10-1998	Rosenberg	
		5,823,876	10-1998	Unbehand	
		5,821,921	10-1998	Osborn et al.	
		5,808,603	09-1998	Chen	
		5,808,601	09-1998	Leah et al.	
		5,805,165	09-1998	Thome, III et al.	

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2

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8

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10/816,954

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First Named Inventor

Erik J. Shahoian

Art Unit

2673

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		5,805,140	09-1998	Rosenberg et al.	
		5,802,353	09-1998	Avila et al.	
		5,790,108	08-1998	Salcudean et al.	
		5,784,052	07-1998	Keyson	
		5,781,172	07-1998	Engel et al.	
		5,771,037	06-1998	Jackson	
		5,767,839	06-1998	Rosenberg	
		5,760,764	06-1998	Martinelli	
		5,757,358	05-1998	Osga	
		5,755,577	05-1998	Gillio	
		5,754,023	05-1998	Rosten et al.	
		5,745,715	04-1998	Pickover et al.	
		5,742,278	04-1998	Chen et al.	
		5,739,811	04-1998	Rosenberg et al.	
		5,736,978	04-1998	Hasser et al.	
		5,734,373	03-1998	Rosenberg et al.	
		5,724,278	03-1998	Chen et al.	
		5,721,566	02-1998	Rosenberg et al.	
		5,714,978	02-1998	Yamanaka	
		5,709,219	01-1998	Chen et al.	
		5,696,537	12-1997	Solhjell	
		5,694,013	12-1997	Stewart et al.	
		5,691,898	11-1997	Rosenberg et al.	
		5,691,747	11-1997	Amano	
		5,684,722	11-1997	Thorner et al.	
		5,666,473	09-1997	Wallace	
		5,666,138	09-1997	Culver	
		5,656,901	08-1997	Kurita	
		5,643,087	07-1997	Marcus et al.	
		5,642,469	06-1997	Hannaford et al.	
		5,629,594	05-1997	Jacobus et al.	
		5,625,576	04-1997	Massie et al.	
		5,596,347	01-1997	Robertson et al.	
		5,589,854	12-1996	Tsai	

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Application Number	10/816,954
Filing Date	April 5, 2004
First Named Inventor	Erik J. Shahoian
Art Unit	2673
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Attorney Docket Number	IMMR095/02US

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		Number Kind Code ² (if known)			
		5,589,828	12-1996	Armstrong	
		5,583,478	12-1996	Renzi	
		5,583,407	12-1996	Yamaguchi	
		5,576,727	11-1996	Rosenberg et al.	
		5,565,887	10-1996	McCambridge et al.	
		5,565,840	10-1996	Thorner et al.	
		5,550,562	08-1996	Aoki et al.	
		5,542,672	08-1996	Meredith	
		5,530,455	06-1996	Gillick et al.	
		5,513,100	04-1996	Parker et al.	
		5,512,919	04-1996	Araki	
		5,506,605	04-1996	Paley	
		5,491,477	02-1996	Clark et al.	
		5,473,344	12-1995	Bacon et al.	
		5,473,235	12-1995	Lance et al.	
		5,471,571	11-1995	Smith et al.	
		5,459,382	10-1995	Jacobus et al.	
		5,457,479	10-1995	Cheng	
		5,451,924	09-1995	Massimino et al.	
		5,414,337	05-1995	Schuler	
		5,405,152	04-1995	Katanics et al.	
		5,399,091	03-1995	Misumoto	
		5,398,044	03-1995	Hill	
		5,396,266	03-1995	Brimhall	
		5,388,992	02-1995	Franklin et al.	
		5,381,080	01-1995	Schnell et al.	
		5,355,148	10-1994	Anderson	
		5,354,162	10-1994	Burdea et al.	
		5,313,230	05-1994	Venolia et al.	
		5,296,871	03-1994	Paley	
		5,286,203	02-1994	Fuller et al.	
		5,275,565	01-1994	Moncrief	
		5,264,768	11-1993	Gregory et al.	
		5,235,868	08-1993	Culver	

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		Number Kind Code ² (if known)			
		5,223,776	06-1993	Radke et al.	
		5,220,260	06-1993	Schuler	
		5,203,563	04-1993	Loper, III	
		5,197,003	03-1993	Moncrief et al.	
		5,193,963	03-1993	McAffee et al.	
		5,189,355	02-1993	Larkins et al.	
		5,186,629	02-1993	Rohen	
		5,185,561	02-1993	Good et al.	
		5,184,319	02-1993	Kramer	
		5,146,566	09-1992	Hollis, Jr. et al.	
		5,139,261	08-1992	Openiano	
		5,116,180	05-1992	Fung et al.	
		5,107,262	04-1992	Cadoz et al.	
		5,107,080	04-1992	Rosen	
		5,103,404	04-1992	McIntosh	
		5,095,303	03-1992	Clark et al.	
		5,076,517	12-1991	Ferranti et al.	
		5,065,145	11-1991	Purcell	
		5,044,956	09-1991	Behensky et al.	
		5,004,391	04-1991	Burdea	
		4,983,901	01-1991	Lehmer	
		4,961,038	10-1990	MacMinn	
		4,949,119	08-1990	Moncrief et al.	
		4,935,728	06-1990	Kley	
		4,906,843	03-1990	Jones et al.	
		4,896,554	01-1990	Culver	
		4,868,549	09-1989	Affinito et al.	
		4,861,269	08-1989	Meenen, Jr.	
		4,839,838	06-1989	LaBiche et al.	
		4,800,721	01-1989	Cemenska et al.	
		4,795,296	01-1989	Jau	
		4,794,384	12-1988	Jackson	
		4,787,051	11-1988	Olson	
		4,782,327	11-1988	Kley et al.	

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		Number Kind Code ² (if known)			
		4,604,016	08-1986	Joyce	
		4,477,043	10-1984	Repperger	
		4,436,188	03-1984	Jones	
		3,919,691	11-1975	Noll	
		3,875,488	04-1975	Crocker et al.	

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		EP	0 626 634	A2	11-1994		
		WO	96 28777		09-1996		
		WO	97 12357		04-1997		
		WO	97 21160		06-1997		
		WO	97 31333		08-1997		
		WO	98 08159		02-1998		
		WO	98 24183		06-1998		
		WO	98 58323		12-1998		
		WO	2343499	A	12-1999		
		WO	00 03319		01-2000		
		WO	00 21071		04-2000		
		EP	0085518	A1	01-1983		
		EP	0265011		04-1988		
		EP	0607580	A1	07-1994		
		EP	062664	A2	11-1994		
		EP	875819		04-1998		
		WO	92 00559		01-1992		
		WO	95 20788		08-1995		
		WO	95 32459		11-1995		

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		Adachi et al., "Sensory Evaluation of Virtual Haptic Push-Buttons," 1994, Suzuki Motor Corp., pp. 1-7. Akamatsu et al., "Multimodal Mouse: A Mouse-Type Device with Tactile and Force Display," 1994, Presence vol. 3, pp. 73-80.	
		Adelstein et al., "Design & Implementation of a Force Reflecting Manipulandum for Manual Control Research," 1992, NASA--Ames Research Center and MIT, pp. 1-26.	
		Akamatsu, M. et al., "Multimodal Mouse: A Mouse-Type Device With Tactile and Force Display," Presence, vol. 3, No. 4, Winter 1994, pp. 73-80.	
		Atkinson et al., "Computing with Feeling," Comput. & Graphics, vol. 2, 1977, pp. 97-103.	
		Batter et al., "Grobe-1: A computer Display to the sense of Feel," Proc IFIP Congress, 1971, pp. 759-763.	
		Brooks, Jr. et al., "Project GROPE, Haptic Displays for Scientific Visualization," Computer Graphics, vol. 24, #4, 1990, pp. 177-184.	
		Buttolo et al., "Pen-based force Display for Precision Manipulation in Virtual Environments," IEEE 0-8186-7084-3, 1995, pp. 217-224.	
		Christophe Ramstein, "Combining Haptic & Braille Technologies: Design Issues and Pilot Study," 1996, Siggraph pp. 37-44.	
		Colgate et al., "Implementation of Stiff Virtual Walls in Force-Reflecting Interfaces," Northwestern University, IL, 1993., pp. 1-8.	
		Dennerlein et al., "Vibrotactile Feedback for Industrial Telemanipulators," 1997, Sixth Annual Symp. On Haptic Interfaces for Virtual Env. and Teleoperator Systems, ASME IMECE, Dallas, pp. 1-7.	
		Ellis et al., Design & Evaluation of a High-Performance Prototype Planar Haptic Interface, Dec. 1993, Advances in Robotics, 55-64.	
		Gotow et al., "Perception of Mechanical Properties at the Man-Machine Interface," IEEE CH2503-1, 1987, pp. 688-690.	
		Hannaford et al., "Force-Feedback Cursor Control," NASA Tech Briefs, vol. 13, No. 11, 1989, pp. 1-7.	
		Hannaford et al., "Performance Evaluation of a 6-Axis Generalized Force-Reflecting Teleoperator," IEEE Transactions on Systems, Man, and Cybernetics, vol. 21, No. 3, 1991, pp. 621-623, 631-633.	

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Sheet **7** of **8****Complete if Known**

Application Number	10/816,954
Filing Date	April 5, 2004
First Named Inventor	Erik J. Shahoian
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR095/02US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		Hasser, C. et al., "Tactile Feedback With Adaptive Controller for a Force-Reflecting Haptic Display--Part 1: Design," IEEE 0-7803-3131, Jan. 1996.	
		Hasser, C., "Tactile Feedback For a Force-Reflecting Haptic Display," School of Engineering, Univ. of Dayton, Dec. 1995.	
		Hirota et al., "Development of Surface Display," IEEE 0-7803-1363-1, 1993, pp. 256-262. Rosenberg, "Perceptual Design of a Virtual Rigid Surface Contact," Armstrong Laboratory AL/CF-TR-1995-0029, 1993, pp. 1-45.	
		Howe et al., "Task Performance w/ a dextrous Teleoperated Hand System," Proc. of SPIE, vol. 1833, 1992, pp. 1-9.	
		Iwata et al., "Artificial Reality w/ Force-Feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics, vol. 24, No. 4, 1990, pp. 165-170.	
		Iwata, Hiroo, "Pen-based Haptic Virtual Environment," IEEE 0-7803-1363-1, 1993, pp. 287-292. Ouh-Young, Ming, "Force Display in Molecular Docking," Dissertation for University of N. Carolina, 1990, pp. 1-42.	
		Kelley et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human--Computer Interface using an Electromagnetically Actuated Input/Output Device," Oct. 19, 1993 University of British Columbia pp. 1-27.	
		Kelley et al., "On the Development of a Force-Feedback Mouse and its Integration into a graphical user Interface," Nov. 1994, Engineering Congress and Exhibition, pp. 1-8.	
		Kilpatrick et al., "The Use of Kinesthetic Supplement in an Interactive Graphics System," University of North Carolina, 1976, pp. 1-172.	
		Millman et al., "Design of a 4 Degree of Freedom Force-Reflecting Manipulandum with a Specified Force/Torque Workspace," IEEE CH2969-4, 1991, pp. 1488-1493.	
		Minsky et al., "Feeling & Seeing: Issues in Force Display," ACM089791-351-5, 1990, pp. 235-242, 270.	
		Munch et al., "Intelligent Control for Haptic Displays," Eurographics '96, vol. 15, No. 3, 1996, pp. 217-226.	
		Ouh-Young et al., "Creating an Illusion of Feel: Control Issues in Force Display," Univ. of N. Carolina, 1989, pp. 1-14.	
		Payette et al., "Evaluation of a Force Feedback (Haptic) Computer Printing Device in Zero Gravity," Oct. 17, 1996, ASME Dynamics Systems, vol. 58 pp. 547-553.	

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		Ramstein et al., "The Pantograph: A Large Workspace Haptic Device for a Multimodal Human--Computer Interaction," Computer--Human Interaction, CHI 1994, pp. 1-3.	
		Rosenberg et al., "A Force Feedback Programming Primer," Immersion Corp., 1997, pp. 1-176.	
		Rosenberg et al., "Commercially Viable force feedback Controller for Individuals with Neuromotor Disabilities," Armstrong Laboratory, AL/CF-TR-1997-0016, 1996, pp. 1-33.	
		Rosenberg et al., "Perceptual Decomposition of Virtual Haptic Surfaces," Proc. IEEE Symposium on Research Frontiers in Virtual Reality, 1993, pp. 1-8.	
		Rosenberg et al., "The use of force feedback to enhance graphical user interfaces," Stereoscopic Displays & Virtual Reality Systems, 1996, pp. 243-248	
		Rosenberg, L., "Virtual fixtures as tools to enhance operator performance in telepresence environments," SPIE Manipulator Technology, 1993, pp. 1-12.	
		Russo, "The Design & Implementation of a 3-Degree-of-Freedom Force Output Joystick," Dept. of Mech. Engineering, 1990, pp. 1-42.	
		Schmult et al., "Application Areas for a Force-Feedback Joystick," 1993, Advances in Robotics, vol. 49, pp. 47-54.	
		Su et al., "The Virtual Panel Architecture: A 3D Gesture Framework," University of Maryland, pp. 387-393.	
		Wiker et al., "Development of Tactile Mice for Blind Access to Computers, Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," 1991, Human Factors Society Mtg., pp. 708-712.	
		Winey III, "Computer Stimulated Visual & Tactile Feedback as an Aid to Manipulator & Vehicle Control," MIT, 1981, pp. 1-79.	
		Yokokoji et al., "What you can see is what you can feel," IEEE 0-8186-7295-1, 1996, pp. 46-54.	

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